REMARKS

This communication is responsive to the Office Action dated March 28, 2005. Applicant has not made any amendments by way of this communication. Claims 1 – 27 remain pending in their original form.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1-8, 11, 14-18, and 25 under 35 U.S.C. 103(a) as being unpatentable over Nylander (US 6,094,173) in view of Cooper (US 4,870,391). In addition, the Examiner rejected claims 9-10, and 19-20 under 35 U.S.C. 103(a) as being unpatentable over Nylander in view of Cooper in further view of Lizzi et al. (US 5,030,941). The Examiner also rejected claims 12, and 21-23 under 35 U.S.C. 103(a) as being unpatentable over Nylander in view of Cooper in further view of Alicot (US 6,020,856). In addition, the Examiner rejected claims 13 and 24 under 35 U.S.C. 103(a) as being unpatentable over Nylander in view of Cooper and Alicot , and further in view of Durec et. Al (US 6,487,395). Lastly, the Examiner rejected claims 26 – 27 under 35 U.S.C. 103(a) as being unpatentable over Lizzi et al. (US 5,030,941) in further view of Cooper.

Applicant respectfully traverses the rejection. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Claims 1-14

Applicant's claim 1 recites a system comprising a plurality of radio frequency (RF) antennas set up to provide one or more interrogation corridors, and a RF reader coupled to the plurality of antennas, the RF reader having a transmitter/receiver port that provides each of the antennas with RF power to produce interrogation fields within the interrogation corridors. The cited references, either singularly or in combination, fail to teach or suggest the use of a single transmitter/receiver port that provides RF power to a plurality of RF antennas produce interrogation fields within the interrogation corridors.

In the Office Action, the Examiner correctly recognized that Nylander does not specifically disclose a RF reader coupled to the plurality of antennas, wherein the RF reader

includes a transmitter/receiver port that provides each of the antennas with RF power to produce interrogation fields within the interrogation corridors. The Examiner sought to overcome Nylander by citing Cooper. In particular, the Examiner asserted that in Cooper figures 1 – 2, column 3, lines 32-41, and column 4, lines 29-42 disclose the use of plural transmitting antennas powered to produce plurality of interrogation fields of corridors near the exit of a protected area. The Examiner then concluded that:

> It would have been obvious to one having ordinary skill in the art at the time of the claimed invention, to have a plurality transmitting antennas as taught by Cooper into the system of Nylander, in order to provide better interrogation zone coverage or plurality of zones/corridors.

Based on these comments, it appears the Examiner may have overlooked the fact that neither Nylander nor Cooper, either singularly or in combination, discloses the use of a single transmitter/receiver port on a single RF reader to produce the interrogation fields, as is disclosed by Applicant's claim 1. As recognized by the Examiner, Nylander fails to teach or suggest such a feature. Further, the portion of Cooper referred to by the Examiner in figure 2, specifically describes the use of multiple output ports for driving multiple antennas at multiple frequencies. As a result, in no way does Cooper in view of Nylander teach or suggest utilizing a single transmitter/receiver port to provide RF power to a plurality of antennas to produce multiple interrogation fields.

Applicant's claim 2 further requires a splitter that receives the RF power from the RF reader and delivers the RF power to each of the plurality of antennas in the form of a plurality of antenna drive signals. In rejecting claim 2, the Examiner relied exclusively on Nylander and cited multiplexer 21 illustrated in Figure 2. However, it appears that the Examiner mischaracterized Nylander's receive multiplexer 21 as being equivalent to Applicant's claimed splitter that delivers RF power to each of the plurality of antennas. As made clear by Figure 2 of Nylander, the multiplexer 21 relied upon by the Examiner does not deliver power to each of a plurality of antennas. In contrast, multiplexer 21 is used to receive inputs from multiple antennas and is unrelated to splitting RF power. As described in Nylander, columns 5 and 6, multiplexer 21 consists of a configuration of switches for receiving various input signals from a plurality of antennas. For at least this reason, Nylander in view of Cooper fails to teach or suggest a splitter

that receives the RF power from the RF reader and delivers the RF power to each of the plurality of antennas in the form of a plurality of antenna drive signals, as required by Applicant's claim 2.

With respect to claim 3, the Examiner again incorrectly relied on multiplexer 21 described by Nylander. Applicant's claim 3 further requires that the claimed splitter receives one or more input signals from the plurality of antennas and combines the one or more tag signals to form a combined input signal for delivery to the T/R port of the RF reader. Thus, when viewed in the context of claim 2, Applicant's claim 3 requires a splitter that performs dual functions: delivering RF power to each of a plurality of antennas to produce multiple interrogation fields, and (2) receiving one or more input signals from the plurality of antennas and combining the tag signals to form a combined input signal for delivery to the T/R port of the RF reader. As stated above, the multiplexer disclosed in Nylander is only capable of multiplexing receive signals. Nylander in view of Cooper fail to teach a bi-directional splitter capable of performing both of the functions required by Applicant's claim 3.

Applicant's claim 11 further requires that each antenna receive RF power from the reader that is out of phase with its neighboring antennas to produce rotating interrogation fields within the interrogation corridor. In rejecting Applicant's claim 11, the Examiner relied on Nylander and cited Figs 5, 7 and col. 3, ll. 10-16. However, these portions are unrelated to the delivery of RF power to multiple antennas using a single port, as required by Applicant's claim 11 in view of claim 1. In fact, Nylander makes no mention of producing a rotating interrogation field within the interrogation corridor at all. To the contrary, columns 3 – 5 of Nylander describe a method for maximizing an available receive signal by receiving antenna signals A and B, and then utilizing a multiplex control microprocessor with a series of switches to generate additional signals (A+B), (A-B) and (-B). The Nylander method then utilizes the multiplex control microprocessor to select the peak of the receive signal and send the peak signal to the receiver, thereby avoiding the potential negative effect of a tag signal being received 180 ° out of phase relative to one another by the two antennas causing a vector sum that decreases the signal level. As a result, in no way does Nylander in view of Cooper teach or suggest a system in which a single port of a reader delivers RF power to a plurality of antennas, where the RF power delivered to each antenna is out of phase with its neighboring antennas to produce rotating interrogation fields within the interrogation corridor.

With respect to claim 14, Nylander in view of Cooper fails to teach or suggest a single T/R port that simultaneously provides each of the antennas with the RF power and accepts a signal produced by an RF tag in any of the interrogation corridors. To the contrary, column 1 of Nylander, as relied upon by the Examiner, describes utilizing a separate transmit antenna positioned at a portal adjacent to a receive antenna. Cooper specifically requires separate transmit and receive ports. Thus, Nylander in view of Cooper in no way teaches or suggests the use of a single T/R port of an RF reader that simultaneously provides each of the antennas with the RF power and accepts a signal produced by an RF tag in any of the interrogation corridors, as required by Applicant's claim 14.

Claims 15-24

Applicant's claim 15 requires producing a radio frequency (RF) output signal from a single transmitter receiver (T/R) port of an RF reader, splitting the RF output signal into a plurality of antenna drive signals, and delivering the antenna drive signals to a plurality of antennas to produce interrogation fields within one or more interrogation corridors.

In rejecting claim 15, the Examiner merely refers to the rejection of the preceding claims over Nylander in view of Cooper. However, as discussed above, the multiplexer 21 of the Nylander system relied upon by the Examiner does not deliver RF signals to each of a plurality of antennas. In contrast, multiplexer 21 is used to receive inputs from multiple antennas and is unrelated to splitting an RF output signal from a single port into multiple drive signals, and delivering the drive signals to the antennas, as required by Applicant's claim 15. As described in Nylander, columns 5 and 6, multiplexer 21 consists of a configuration of switches for receiving various input signals from a plurality of antennas, and is entirely unrelated to delivering multiple drive signals to a plurality of antennas from a single port.

Further, Cooper specifically describes the use of multiple output ports for driving multiple antennas at multiple frequencies, which is directly contrary to Applicant's claim 15. For at least these reasons, Nylander in view of Cooper fails to teach or suggest producing a radio frequency (RF) output signal from a single transmitter receiver (T/R) port of an RF reader, splitting the RF output signal into a plurality of antenna drive signals, and delivering the antenna

drive signals to a plurality of antennas to produce interrogation fields within one or more interrogation corridors, as required by claim 15.

Claims 16-24 are dependent on claim 15 and patentable for at least the reasons set forth above with respect to claim 15. None of the additional references cited by the Examiner overcome the deficiencies of Nylander and Cooper set forth above.

Claim 25

Applicant's claim 25 recites an exit control system for detecting unauthorized removal of articles from a protected area, the exit control system comprising: a plurality of antennas oriented to provide interrogation corridors; and an RF reader that provides RF power to the antennas to produce interrogation fields in the interrogation corridors, wherein the RF reader interrogates the plurality of antennas using a single port to transmit RF power to the antennas and to receive tag signals from the antennas at the single port.

In rejecting claim 25, the Examiner again relied on Nylander in view of Cooper. However, neither Nylander nor Cooper, either singularly or in combination, teach or suggest the use of a single port to transmit power to a plurality of antennas and to receive tag signals from the plurality of antennas. In contrast, column 1 of Nylander specifically describes a separate transmit antenna positioned at a portal adjacent to a receive antenna, and makes no mention of a single port capable of performing both functions. As described above, multiplexer 21 described by Nylander relates only to receiving signals from antennas. Cooper describes the use of separate transmitting and receiving antennas, and specifically requires the use of multiple output ports for providing power to the transmitting antennas. Both Nylander and Cooper describe the use of separate transmitting and receiving antennas and therefore do not teach or suggest utilizing a single port to transmit RF power to the antennas and to receive tag signals from the same antennas at the single port, as required by Applicant's claim 25.

Claims 26-27

The Examiner rejected claims 26 – 27 under 35 U.S.C. 103(a) as being unpatentable over Lizzi et al. (US 5,030,941) in further view of Cooper (US 4,870,391).

Applicant's claim 26 requires, in part, receiving from a single reader a tag detection signal that indicates at least one tag is present within any of a plurality of interrogation corridors, receiving a patron signal that indicates at least one patron is present within any of the interrogation corridors, and outputting an alarm signal upon receiving the tag detection signal and the patron signal.

In rejecting claim 26, the Examiner relied on Lizzie et al. at Figs. 1-3, lines 52-65, in view of Cooper. However, the Examiner's reasoning fails to recognize that neither Lizzie et al nor Cooper teach or suggest a single reader receiving a tag detection signal that indicates at least one tag is present within any of a plurality of interrogation corridors. For example, as correctly recognized by the Examiner, Lizzie et al. describes an electronic article surveillance (EAS) system having a single reader that is used to detect the presence of an article in a single, corresponding corridor. Cooper, as described above, specifically requires the use of multiple input and output ports.

Thus, Lizzie et al in view of Cooper fail to teach or suggest receiving from a single reader a tag detection signal that indicates at least one tag is present within any of a plurality of interrogation corridors. Even if the Lizzie system were modified in view of Cooper, the resulting RFID system would still require multiple ports.

For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicant's claims 1 – 27 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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